



Department
for Education

Building Bulletin 100: Fire Safety Design for Schools

Government consultation

Launch date 27 May 2021

Respond by 18 August 2021

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Introduction

Published in 2007, Building Bulletin (BB) 100 is non-statutory guidance on fire safety for schools. The guidance covers designing a school building so that pupils and staff will have early warning if a fire breaks out and can evacuate the premises quickly and safely. BB 100 advises how to minimise the spread of fire within a school and how to ensure the building structure is adequately resistant to the effects of fire. It also sets out the requirements for access and facilities for the Fire and Rescue Services.

Building Regulations' Approved Document B (AD B) says this on schools – “The design of fire safety in schools is covered by Building Bulletin 100, which should be used. Building Bulletin 100 contains fire safety provisions that are outside the scope of the Building Regulations.”

Now 14 years old, BB 100 needed updating and simplifying. It also needed reviewing to see if there are additional areas of fire safety that should be included and whether there is content that is no longer needed. To that end a Call for Evidence was launched in March 2019.

Who this is for

This guide is intended for all those with an interest in fire safety in schools, but in particular:

- Designers
- Fire engineers
- building control officers (or equivalent) and fire safety officers
- Head teachers, governors, teaching staff facilities and maintenance staff will find it of interest to underpin their role as fire safety managers

Issue date

The consultation was issued on 27 May 2021.

Enquiries

If your enquiry is related to the policy content of the consultation you can contact the team at:

bb100.consultation@education.gov.uk

If your enquiry is related to the DfE e-consultation website or the consultation process in general, you can contact the DfE Ministerial and Public Communications Division by

email: Consultations.Coordinator@education.gov.uk or by telephone: 0370 000 2288 or via the [DfE Contact us page](#).

Additional copies

Additional copies are available electronically and can be downloaded from [GOV.UK DfE consultations](#).

The response

The results of the consultation and the Department's response will be [published on GOV.UK](#) in 2021.

About this consultation

This consultation document sets out 8 topic areas:

- Fire Suppression Systems
- Fire detection and alarms systems
- Vertical means of escape
- Compartmentation
- Inclusive Design for special schools
- Boarding Accommodation
- Cladding
- Fire Safety Management

It is important to note that there are 12 questions that are asked relating the 8 topics outlines above.

Respond online

To help us analyse the responses please use the online system wherever possible. Visit www.education.gov.uk/consultations to submit your response.

Other ways to respond

If for exceptional reasons, you are unable to use the online system, for example because you use specialist accessibility software that is not compatible with the system, you may download a word document version of the form and email it or post it.

By email

- bb100.consultation@education.gov.uk

Deadline

The consultation closes on 18 August 2021.

Technical Review of Building Bulletin 100: A Call for Evidence

Background

This consultation exercise ran from 8 March to 31 May 2019 and there were 64 responses. These included:

- 11 trade associations and manufacturers
- 9 fire and rescue services plus the National Fire Chiefs Council (NFCC)
- 8 local authorities plus the Local Government Association (LGA)
- 8 fire safety engineers
- 7 professional bodies and practices
- 4 sprinkler organisations
- 2 insurance companies

The Call for Evidence asked a range of questions on the scope and content of BB100. The main messages coming back from this exercise were:

- more work was needed to establish the wider design benefits offered by installing fire suppression systems
- the size of fire compartmentation recommended in BB100 needed reviewing
- a single escape stairway in a school with two floors or more should not be allowed
- refuge spaces in staircases for people with limited mobility should not be relied on when a fire breaks out, and evacuation lifts should be provided
- better and more detailed advice is needed on fire alarm and detection systems in schools
- schools over 18m high should be classed higher risk, to match the existing guidance from MHCLG in relation to high rise residential buildings
- for the first time, BB100 should cover boarding schools
- BB100 should provide more extensive advice on property protection and on fire safety management in schools

In addressing these responses, we commissioned professional advice on:

- fire suppression systems
- fire alarm systems
- evacuation lifts
- fire safety management
- various technical details needed to update BB 100

We also reviewed recommendations for vertical means of escape in multi-storey schools, compartment sizes and inclusive design.

Proposal and rationale

We now have a draft that contains updated and expanded advice on compliance with Building Regulations Part B (Fire Safety), school-specific fire risks, property protection and fire safety management. It also covers boarding accommodation for the first time.

Before finalising the revised guidance, we are consulting on the main changes now incorporated in it by asking 12 questions. We are seeking responses from all those with an interest in fire safety design for schools, such as:

- design professionals, including fire engineers and architects
- contractors
- the fire safety sector, including the fire and rescue services and building control bodies
- professional bodies
- relevant trade organisations and bodies
- local authorities
- schools and their responsible bodies

Building Bulletin 100: Revision Questions

Fire Suppression Systems

BB 100 now gives clear guidance on where automatic fire suppression systems should be installed in school buildings.

Question 1. BB 100 recommends that automatic fire suppression systems should be installed in all new school buildings that have a storey with a finished floor level over 11m above ground level. Do you agree with this recommendation? If not, please explain why.

Question 2. BB 100 recommends that automatic fire suppression systems should be installed in all new special school buildings. Do you agree with this recommendation? If not, please explain why.

Question 3. BB 100 recommends that automatic fire suppression systems should be installed in all new boarding accommodation. Do you agree with this recommendation? If not, please explain why.

Question 4. BB 100 offers some relaxations of requirements in school buildings fitted with automatic fire suppression systems, such as larger fire compartment sizes. Is there

scope for easing requirements further in such buildings, or are the current relaxations sufficient?

Fire Detection and Alarm Systems

BB 100 now recommends a minimum level of automatic fire detection and alarm system provision. Previously it did not, with decisions being made on a project by project basis. The minimum level of coverage recommended is:

- Special schools and residential accommodation in boarding schools – category L2/P2¹ systems
- Mainstream schools – category L3 systems (raised to L3/P2 if enhanced property protection required).

Question 5. Do you agree that this minimum level of provision is right for these types of schools? If not, please explain why.

Vertical Means of Escape

The original version of BB 100 said that a single escape stair should be avoided where possible and then gave a maximum capacity of 120 pupils plus staff for the first floor of a school served by one staircase. The new version does not allow single staircases in new multi-storey school buildings.

Question 6. The new version of BB 100 says “new, multi-storey school buildings must have at least two staircases and single escape stairs are not acceptable”. Do you agree with this recommendation? If not, please explain why.

BB 100 now recommends the provision of an evacuation lift in all new multi-storey school buildings, as it offers a safer and more dignified way for evacuating occupants with limited

¹ Category ‘L’ is for life safety and ‘P’ for property protection.

L2 – Escape routes, rooms that open onto an escape route, and high fire risk areas (e.g. kitchens, boiler rooms) that do not open onto an escape route.

L3 – Escape routes and rooms that open onto an escape route.

P2 – High fire hazard areas (e.g. kitchens, boiler rooms, plant rooms) subject to a risk assessment to establish level of risk.

mobility from upper floors. It also advises that the minimum number and size of evacuation lifts in mainstream schools should be related to the number of pupils and storeys served:

- For schools with no more than two storeys and fewer than 900 pupils, a single evacuation lift of 1400mm x 1100mm (internal dimensions)
- For larger schools on at least three floors and 900 pupils or more, a single two wheelchair lift of 2000mm x 1400mm, or two lifts of 1400mm x 1100mm adequately separated on plan.

For special schools, it advises that the evacuation lift provision should be determined on an individual basis, but subject to a default minimum of:

- For all multi-storey special schools, a lift of 2000mm x 1400mm
- For all non-ambulant² special schools a two wheelchair lift of 2400mm x 1400mm.

Question 7. Do you agree that evacuation lifts should be provided in new multi-storey schools, rather than standard passenger lifts and that the level of provision recommended is reasonable? If not, please explain why.

Compartmentation

The recommended maximum fire compartment size of 800m² for a non-sprinklered school building originated in BB 100's predecessor guide, the sixth edition of Building Bulletin 7, "Fire and the design of educational buildings" published in 1988. This was wider in scope than previous editions and says that it is was revised in the light of evidence obtained from published information on fires in educational buildings - probably a reference to an increasing risk of arson in schools at the time.

The 800m² maximum is much smaller than in other guides. AD B recommends a maximum of 2,000m² for educational buildings, while BS 9999 has 8,000m².

BB 100 is clearly out of step with other guidance, which may be one of the reasons why design teams and contractors prefer to use BS 9999 for school design. We propose that the new version should recommend compartment sizes that match AD B. That is:

- For single storey school buildings, no limit on compartment size with or without automatic fire suppression

² As defined in BB 104

- for multi-storey school buildings 2,000m² without automatic fire suppression, 4,000m² with them.

Question 8. Do you agree that the recommended compartment sizes in BB 100 should be increased to match the recommendations in AD B for educational buildings? If not, please explain why.

Inclusive design and special schools

Guidance on accessibility is more comprehensive in the new version of BB 100, reflecting the need for schools to be more inclusive. Guidance on fire safety in special schools is also expanded and includes advice on fire suppression systems.

Question 9. Do you consider this guidance is detailed enough? If not, please explain why.

Boarding accommodation

For the first time BB 100 includes advice on fire safety in boarding schools. This includes recommendations on:

- fire detection and alarms systems
- fire suppression systems
- compartmentation
- internal linings
- external walls and cladding materials.

Question 10. Do you consider this guidance is detailed enough? If not, please explain why.

Cladding

Cladding

BB 100 now sets higher fire standards for external cladding than before and includes new categories of school buildings. The requirements are:

- cladding on a school building with a storey 18m above ground level should achieve Class A2-s1,d0 or better

- cladding on school buildings below that height should achieve Class B-s1,d0 or better
- where school buildings are prone to vandalism, as determined by a security risk assessment at feasibility stage, any cladding to ground floor walls should achieve Class A2-s1,d0 or better
- the residential areas of boarding schools should have external walls, including the external surfaces of walls, constructed of materials achieving Class A2-s1,d0 or better

Question 11. Do you agree with these requirements? If not, please explain why.

Fire Safety Management

Fire safety management

BB 100 now includes a greatly expanded section on fire safety management. This mainly focusses on responsibilities under Building Regulations' Regulation 38 and the Regulatory Reform (Fire Safety) Order. It does not include advice on day to day management issues, or good housekeeping, as BB 100 is a technical document rather than a school management tool.

Question 12. Do you agree with this approach and do you think the guidance is sufficient? If not, please explain why.



Department
for Education

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